



LOWELL PUBLIC SCHOOLS
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Abigail Anderson
Director of Research and
Accountability

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To: Liam Skinner, Chief Schools Officer
From: Abigail Anderson
RE: Doctoral Research Proposal, Ashley Reis Dupere
Date: October 31, 2022

Ashley Reis Dupere is enrolled in a doctoral program at American International College. A requirement of the program is to complete a dissertation-in-practice research case study. Ms. Dupere's objective of her research, to examine the various pedagogies that elementary teachers use to teach mathematics to English learners (ELs) and the ways in which language and culture influence their approaches to mathematics instruction for ELs. More specifically, this study will explore any potential supports, adaptations, or modifications that teachers might utilize for ELs, when having to implement mathematics tasks that come from standardized mathematics curriculum or standardized instructional resources. The goal is to evaluate whether these decisions are made in consideration of any complex language that may act as a barrier to mathematics and/or cultural contexts that cause ELs to struggle with sense-making and problem-solving.

Ms. Dupere proposes to conduct semi-structured interviews with 12 elementary teachers who teach mathematics, with at least one EL student on their caseload. The semi-structured interview will comprise of 18 open-ended interview questions. Each interview will be audio-recorded and labeled with a pseudonym to protect the identity of the participant. Each interview is expected to last approximately 60 minutes. It is recommended by the district, that Ms. Dupere email the LPS school's principals to recruit the 12 elementary teachers. The protocols that will be utilized for this research study will entail minimal risk. The participants are not anticipated to endure any physical, psychological, social, legal, financial, or employment risks by contributing to this research study. Virtual interviews will be scheduled at a time that is convenient for the research study participants in order to ensure that each participant's personal and/or professional schedules are not disrupted. The researcher does acknowledge that slight participant discomfort may occur for some participants when answering interview questions. If a participant feels uncomfortable or distressed at any point during an interview, the participant may discontinue participation, either temporarily or permanently, without consequence.

The findings from this study will increase the current understanding of how elementary teachers meet the needs of ELs in mathematics classrooms and the influence of language and culture in mathematics instructional decision-making for ELs. Increased knowledge of elementary teachers' approaches to the phenomenon of having to utilize standardized curriculum or resources to meet the needs of ELs in mathematics will add to the existing, but limited, literature. This research will lead to more informed decisions on the instructional support and professional learning opportunities that are provided to elementary teachers of ELs. As a result, this study will be able to address the central issue indicated by the research, which is ELs' persistent low performance in mathematics.

The work conforms with Policy LC. I recommend approval by the school committee.



Completion Date 01-Jul-2022
Expiration Date N/A
Record ID 49840615

This is to certify that:

Ashley Dupere

Has completed the following CITI Program course:

Not valid for renewal of certification
through CME.

Responsible Conduct of Research

(Curriculum Group)

Group 4: Doctoral Level Students

(Course Learner Group)

1 - Basic

(Stage)

Under requirements set by:

American International College

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?we6dbdbc8-e0b4-44d8-b932-bf42f48276db-49840615

**APPLICATION FOR RESEARCH REVIEW
LOWELL PUBLIC SCHOOLS DISTRICT INSTRUCTIONAL REVIEW BOARD
2019-2020**

NAME:	Ashley Reis Dupere
LOCATION OF EMPLOYMENT	Fall River Public Schools
APPROVAL FROM IRB (ORGANIZATION OR EDUCATIONAL INSTITUTION) *Please list name and attach approval letter*	American International College 9/20/2022
RESEARCH INFORMATION	
1. Description of Study:	The purpose of this study is to examine the various pedagogies that elementary teachers use to teach mathematics to English learners (ELs) and the ways in which language and culture influence their approaches to mathematics instruction for ELs. More specifically, this study will explore any potential supports, adaptations, or modifications that teachers might utilize for ELs, when having to implement mathematics tasks that come from standardized mathematics curriculum or standardized instructional resources. The goal is to evaluate whether these decisions are made in consideration of any complex language that may act as a barrier to mathematics and/or cultural contexts that cause ELs to struggle with sense-making and problem-solving.
2. Participants in the project:	
a. Unit of Study: (Teachers, students, etc.)	Elementary teachers who teach mathematics, with at least 1 EL on their caseload.
b. Estimated amount of Participants:	12
c. Place an X in the box next to any of the following special populations involved in this study, if applicable.	<input type="checkbox"/> Minors <input type="checkbox"/> Students with disabilities <input type="checkbox"/> Other vulnerable populations- please identify *If working with students, please see #5
d. Age ranges:	Gender, ethnicity, race, and age are not being considered for participation in this research study.

e. Gender of Participants (check all that apply):	Male (<input checked="" type="checkbox"/>) Female (<input checked="" type="checkbox"/>) Gender, ethnicity, race, and age are not being considered for participation in this research study.
3. Research Methodology:	
a. How will this research be beneficial in advancing knowledge in the district?	<p>This research study will increase the current understanding of how elementary teachers meet the needs of ELs in mathematics classrooms and the influence of language and culture in mathematics instructional decision-making for ELs. Increased knowledge of elementary teachers' approaches to the phenomenon of having to utilize standardized curriculum or resources to meet the needs of ELs in mathematics will add to the existing, but limited, literature. This research will lead to more informed decisions on the instructional support and professional learning opportunities that are provided to elementary teachers of ELs. As a result, this study will be able to address the central issue indicated by the research, which is ELs' persistent low performance in mathematics.</p>
b. Will this research create a strain on the district's staff and/or resources? Please describe.	<p>The protocols that will be utilized for this research study will entail minimal risk. The participants are not anticipated to endure any physical, psychological, social, legal, financial, or employment risks by contributing to this research study.</p> <p>Virtual interviews will be scheduled at a time that is convenient for the research study participants in order to ensure that each participant's personal and/or professional schedules are not disrupted. The researcher does acknowledge that slight participant discomfort may occur for some participants when answering interview questions. If a participant feels uncomfortable or distressed at any point during an interview, the participant may discontinue participation, either temporarily or permanently, without consequence.</p>

c. Describe the procedures involved in the collection or review of the data in sufficient detail so that the IRB can evaluate safety and risks to human participants.

If necessary, please review the attached NIH "Protecting Human Research Participants" PDF for additional info.

Semi-structured interviews will be conducted virtually, at a time that is most convenient for the study participants. The semi-structured interview will comprise of 18 open-ended interview questions. Each interview will be audio-recorded and labeled with a pseudonym. They are expected to last approximately 60 minutes.

The audio-recorded interviews will be transcribed by the [rev.com](https://www.rev.com) transcription service. A Non-Disclosure Agreement will be signed prior to the researcher uploading the interview recordings onto the platform.

Once the researcher receives the interview transcripts, the researcher will verify the accuracy of each interview transcript by comparing the audio-recorded interview to the written transcript. Each transcript will then be sent to each corresponding research study participant for an opportunity for validation. If any participant identifies any inconsistencies in their interview transcript, the researcher will hold a virtual discussion with the participant, to allow them the opportunity to describe the discrepancies.

Each teacher participant will be asked to submit at least one artifact, which should include a math task that has been utilized for teaching mathematics to ELs and the original resource from which it came. Follow-up interviews may take place with participants, if it is determined that additional information needs to be collected.

To analyze each interview, open coding will be utilized to reduce the gathered data into smaller units and note any potentially relevant information for answering the research questions. Axial coding will be used to group open codes that fit together and then lists of axial codes derived from each interview will be compared to begin identifying categories. The coding process for this study will specifically focus on any discussed nuances about teaching mathematics to ELs and the ways that language and culture may impact the utilizations of standardized mathematics curriculum or resources. Once categories emerge, a review of open codes will take place to confirm categories.

A similar process will be utilized to analyze the artifacts provided by participants as these artifacts will be utilized in conjunction with the interview themes to synthesize an understanding of the phenomenon.

This dissertation will utilize exploratory analysis to develop codes and themes from the interviews and artifacts in order to illuminate the current teaching experiences of Massachusetts public elementary teachers who are tasked with using standardized curriculum or tasks for teaching ELs. In order to confirm both the reliability and validity of the researcher-developed data codes and themes, qualitative coding software Dedoose will be utilized.

<p>d. What form of data collection will this research take? Check all that apply:</p>	<p> <input type="checkbox"/> Survey <input type="checkbox"/> Experiment <input type="checkbox"/> Interview (Group) <input checked="" type="checkbox"/> Interview (Individual) <input type="checkbox"/> Existing Records <input type="checkbox"/> Observation <input type="checkbox"/> Other (Explain): _____ </p> <p><i>*If using a survey, please see #8</i></p>
<p>e. Anonymity / Confidentiality.</p> <p>1) If the responses are to be anonymous, explain the procedure you will follow so that participants' responses are in fact anonymous.</p> <p>2) If the responses are NOT anonymous, explain the procedure you will follow so that the responses will held in confidence.</p>	<p>Is your study anonymous? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If not anonymous, is your study confidential? <input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>The identity of each participant, along with demographic information, will be treated confidentially. Anonymity for each participant will be accomplished by removing the personal information provided and by using pseudonyms for each participant, school, and school district.</p>
<p>f. Data Safety and Reporting:</p>	<p>All electronic data will be stored on the researcher's personal computer, accessible only by a password known to the researcher. Paper data will be stored in a locked drawer at the researcher's residence.</p> <p>All recorded interviews, electronic interview transcripts, and paper copies of the interview transcripts and field notes will be kept for a period of four years, following dissertation completion or for a duration specified by the Institutional Review Board (IRB). After the four-year timeframe, all electronic and paper data will be destroyed.</p>

4. Level of Review:	
a. Researcher's classification of the project. (See Guidelines): (The IRB will make the final determination.)	<input type="radio"/> No Risk <input checked="" type="radio"/> Minimal Risk <input type="radio"/> Risk [Is there any potential harm for research participants or the district?]
b. If MINIMAL RISK or RISK, identify the potential risks:	Participants are not anticipated to endure any physical, psychological, social, legal, financial, or employment risks by contributing to this research study. Virtual interviews will be scheduled at a time that is convenient for the research study participants in order to ensure that each participant's personal and/or professional schedules are not disrupted. The researcher does acknowledge that slight participant discomfort may occur for some participants when answering interview questions. If a participant feels uncomfortable or distressed at any point during an interview, the participant may discontinue participation, either temporarily or permanently, without consequence.
5. Informed Consent Form. If any risks are identified, you must submit an Informed Consent Form for approval. *Parental Consent Forms MUST be used if minors are included in study, in predominant language of parent.*	<input checked="" type="radio"/> See attached (either at the end of this form, or as a separate file attachment on the electronic submission website) <input type="radio"/> Not applicable [On very rare occasions, federal regulations provide for informed consent to be waived. If you wish this, give your arguments for the waiver, supporting your argument with federal guidelines.]

<p>6. Will deception (purposefully misleading participants as to the purpose of the study) be used?</p> <p>If yes:</p> <ul style="list-style-type: none"> a. Describe the deception. b. Justify the use of deception. c. Explain how participants will be debriefed as to the real purpose of the study. d. Attach a copy of the debriefing statement or script. 	<p>YES () NO (X)</p> <p>[If this is a deception study, you must explain what the deception is, why the use of deception is necessary, why it is justified (risk/benefit analysis), and how participants will be informed of the real purpose. Attach a copy of the written debriefing statement (or script if you will explain orally) at the end of this application or as a separate file upload on the electronic submission website.]</p>
<p>7. List all other institutions co-operating in the project. Attach written permission from each to your application.</p>	<p>N/A</p>
<p>8. <u>Attach</u> a copy of the survey or interview questions associated with your project.</p>	<p>(X) See attached (Appendix #)</p> <p>() Not applicable</p>

Appendix G

Interview Questions

The following questions will guide the semi-structured interviews for this research study.

What are the pedagogies that elementary teachers, tasked with using a standardized mathematics curriculum or instructional resources, use to teach mathematics to ELs?

1. Do you believe you are able to provide EL students with mathematics instruction that is challenging and appropriate?
 - a. If yes, how so?
2. While teaching EL students mathematics, do you use particular strategies to engage them in learning?
 - a. What type of student groupings do you use for ELs?
 - c. What does collaboration look like for ELs?
3. In your use of the math curriculum, do you feel able to accommodate your EL students' learning needs?
 - a. If yes, how so?
4. Do you believe you are able to develop higher-order thinking skills in your EL students, through teaching the math curriculum?
 - a. If yes, how so?
5. What are the ways you assess and track your EL students' academic achievement in mathematics?
 - a. What role does the curriculum play?
6. Describe any technological resources you may integrate in your instruction to help ELL students learn more effectively.

In what ways does language influence the teaching methods that elementary teachers use to teach mathematics to ELs?

7. What does it look like, to ensure that EL students understand information conveyed to them during math instruction?

8. Do you notice differences in EL students' academic language proficiency and their social/conversational language proficiency?
 - a. How does this impact how you approach their mathematics instruction?
9. What is your approach to teaching academic terminology to EL students in mathematics?
10. How do you support EL students' communication throughout various mathematics discussions?
11. How do you support EL students' communication throughout various written mathematics tasks?
12. What role does knowledge of second language acquisition play in supporting EL students in learning mathematics?

In what ways does culture influence the teaching methods that elementary teachers use to teach mathematics to ELs?

13. Do you recognize any discontinuity between EL students' home culture and school culture?
14. Do you recognize any discontinuity between EL students' home culture and the mathematics curriculum?
15. Is it necessary to accumulate knowledge of EL students' home cultures, in order to support their math learning?
16. When planning mathematics instruction, do you consider connections between EL students' cultural background and their mathematics learning experiences?
17. Is it important to help EL students develop a sense of belonging to the learning community, in math class?
18. Do you feel able to boost the self-confidence and self-esteem of EL students when teaching mathematics to them?



Informed Consent Documentation

Dissertation Study

Mathematics Instruction for English Learners: The Influence of Standardized Curriculum, Language, and Culture on the Pedagogies used by Elementary Teachers

Researcher and Institutions

You are being asked to participate in a dissertation study conducted by Ashley Dupere, a doctoral student at American International College's Doctor of Education Program in Teaching and Learning in Springfield, MA. The supervising faculty member is Dr. Patricia Lally, Dissertation Chair in the School of Education at American International College.

Purpose of the Study

The purpose of this study is to investigate the various pedagogies that elementary teachers use to teach mathematics to English learners (ELs). Along with exploring how teachers and the ways in which teachers integrate various teaching methods and content knowledge to support ELs in mathematics, the study will explore the influence of language and/or culture. More specifically, this study will explore the phenomenon of teaching mathematics to ELs, from the perspectives of teachers who must implement mathematics tasks that come from standardized mathematics curriculum or standardized instructional resources. The population for this research study includes Massachusetts public elementary, Kindergarten through grade 5, teachers.

You are being invited to participate in this research study because you are a Massachusetts public elementary school teacher within a school district that has provided consent for this research study.

Description of the Study

If you agree to participate in this research study, you will be asked to respond to 18 open-ended interview questions. The interview questions will offer you the opportunities for you to:

- Share your experiences as a teacher of EL students.
- Describe your instructional methods for teaching mathematics to EL students, when using a standardized curriculum or resource.
- Describe how aspects of language and culture influence how you teach math to ELs.
- Share your experiences using a standardized curricular resource to teach ELs mathematics.

To allow for participation in this research study to be feasible for you and to ensure minimal disruption to your personal and professional schedules, an in-person or virtual Zoom interview, per your choice, will be scheduled at a time most convenient for you. The Zoom interview is anticipated to last approximately 60 minutes in duration.

Risk and Risk Management

The protocol that will be utilized for this research study will entail minimal risk. The participants are not anticipated to endure any physical, psychological, social, legal, financial, or employment risks by contributing to this research study. However, the researcher recognizes that slight participant discomfort may occur when answering interview questions. If you feel uncomfortable or distressed at any point during the interview, you may discontinue participation, either temporarily or permanently, without consequence.

Benefits

Your participation in this research study will be beneficial to numerous stakeholders within the field of education. The information gained from this research study will contribute to a greater understanding of how elementary teachers meet the needs of ELs in the mathematics classroom. It will also expand current knowledge of the instructional methods that elementary teachers use for teaching mathematics to ELs, especially when complex language acts as a barrier to mathematics and/or cultural contexts cause ELs to struggle with making sense of and

solving mathematics problems. Increased knowledge of elementary teachers' approaches to the phenomenon of having to utilize standardized curriculum or resources and meet the needs of ELs while teaching them mathematics will add to the existing, but limited, literature. Results from this study could lead to informed decisions on the instructional support and professional learning opportunities that will be provided to elementary teachers of ELs.

Confidentiality and Privacy

Participant information as well as both the participant's school and school district will be handled confidentially. Pseudonyms will be utilized for the participant, school and school district, when reporting results.

All electronic data will be stored on the researcher's personal computer, accessible only by a password known to the researcher. Paper data will be stored in a locked drawer at the researcher's residence. All recorded interviews, electronic interview transcripts, and paper copies of the interview transcripts and field notes will be kept for a period of four years following dissertation completion or for a duration specified by the Institutional Review Board (IRB). After the four-year timeframe, all electronic and paper data will be deleted or shredded as directed by the IRB.

Incentives to Participate

The study will provide an incentive of \$25.00 in the form of a gift card. This gift card will be mailed to participants following interview completion.

Voluntary Participation

Participation in this research study is voluntary. Your decision of whether to participate in this research study, or not, will not influence your future relations with American International College. If you consent to participate, you may withdraw your consent at any time during this research study without penalty.

Contact Information

Ashley Dupere, Student Researcher: if you have any questions regarding this research study, please do not hesitate to contact me by phone at 508-496-6478 or by email at

Ashley.Dupere@aic.edu

Dr. Patricia Lally, AIC School of Education Dissertation Chair: if you have additional questions, you can contact Dr. Lally at patricia.lally@aic.edu.

Signatures

I understand the information presented in this informed consent document and have had all of my questions pertaining to participation in this research study answered. I voluntarily consent to participate in this research study.

Printed Name of Participant: _____ Date: _____

Signature of Participant: _____ Date: _____



Signature of Researcher: _____ Date: _____



1000 State Street | Springfield, MA 01109 | 1.800.242.3142 | www.aic.edu

Date: 9/20/22

To: Ashley Dupere

Protocol Title: Elementary Teachers' Orientations Towards Mathematics Instruction for English Learners: Standardized Curriculum, Linguistic Factors, and Cultural Influences.

Review Type: Expedited - Conditional Approval pending Superintendent permissions

Protocol Number: 2022 8-3

Dates of Approval: 9/20/22- 9/19/24

On behalf of the American International College Institutional Review Board (IRB), I am pleased to inform you that your IRB proposal has been reviewed under Expedited Protocol and approved pending submission of Dr. Lally's IRB Certificate and Superintendent Permission Letters. The AIC IRB operates under the Common Rule and the Code of Federal Regulations CFR: Title 45, Part 46. This approval is granted with the understanding that the committee will be notified if:

1. Data collection continues beyond the expiration data as indicated in this letter.
2. Research procedures are modified in any way that influences the research participants, study methodology, consent or protocol.
3. Any adverse event occurs involving the research participants.

Best Regards,

Christine A. Helfrich, PhD, OTR/L, FAOTA

Christine Helfrich PhD, OTR, FAOTA

Chair, Institutional Review Board

American International College

IRB.Chair@aic.edu

Cell: 708-466-5848

CC: Patricia Lally, PhD